

283. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a second part which comprises one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal.

284. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises an analyte having one or more molecularly recognizable portions thereon;

a second part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable analyte portion, and a second portion comprising one or more nucleic acid sequences or segments; and

a third part which comprises one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion or portions on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal.

285. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a complex which comprises:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a

nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal.

286. (PREVIOUSLY PRESENTED) A composition of matter comprising:
a complex which comprises:

an analyte having one or more molecularly recognizable portions thereon;

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable analyte portion and a second portion comprising one or more nucleic acid sequences or segments; and

one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal.

287. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a second part which comprises one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal.

288. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises an analyte having one or more molecularly recognizable portions thereon;

a second part which comprises more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly

recognizable analyte portion and a second portion comprising one or more nucleic acid sequences or segments; and

a third part which comprises one or more non-radioactive signalling entities p substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal.

289. (PREVIOUSLY PRESENTED) A composition of matter comprising:
a complex which comprises:

more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal.

290. (PREVIOUSLY PRESENTED) A composition of matter comprising:
a complex which comprises:

an analyte having one or more molecularly recognizable portions thereon;

more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable analyte portion, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal.

291. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a second part which comprises one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of providing a detectable signal.

292. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a complex which comprises:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a- molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of providing a detectable signal.

293. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises an analyte having one or more molecularly recognizable portions thereon;

a second part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a third part which comprises one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte,

each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of providing a detectable signal.

294. (PREVIOUSLY PRESENTED) A composition of matter comprising:
a complex which comprises:

- an analyte having one or more molecularly recognizable portions thereon;
- a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and
- one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of providing a detectable signal.

295. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288; 289, 290, 291, 292, 293 or 294, wherein said analyte comprises a biological system.

296. (PREVIOUSLY PRESENTED) The composition according to claim 295, wherein said biological system comprises at least one member selected from the group consisting of a virus or a viral component thereof, and a cell or a cellular component thereof.

297. (PREVIOUSLY PRESENTED) The composition according to claim 296, wherein said cell or component thereof comprises a bacterium or a bacterial component thereof.

298. (PREVIOUSLY PRESENTED) The composition according to claim 295, wherein said biological system comprises a pathogen or a component thereof.

299. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said analyte is selected from the group consisting of a nucleic acid and a protein.

300. (PREVIOUSLY PRESENTED) The composition according to claim 299, wherein said analyte nucleic acid is selected from the group consisting of an oligo- or polyribonucleotide, an oligo- or polydeoxyribonucleotide, a poly-purine, a polypyrimidine, and a nucleotide analog-containing nucleic acid polymer, or any combination of the foregoing.

301. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said molecular bridging recognizing first portion comprises a low molecular weight organic compound.

302. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said molecular bridging recognizing first portion is selected from the group consisting of an antigen and an antibody.

303. (PREVIOUSLY PRESENTED) The composition according to claim 302, wherein said antibody comprises a polyclonal or a monoclonal antibody.

304. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said molecular bridging recognizing first portion is selected from the group consisting of a saccharide and a lectin.

305. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said molecular bridging recognizing first portion is selected from the group consisting of a hormone and a receptor therefor.

306. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said molecular bridging recognizing first

portion is selected from the group consisting of an enzyme, an allosteric effector, an enzyme substrate and an enzyme cofactor.

307. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said molecular bridging recognizing first portion is selected from the group consisting of a ligand and a receptor therefore.

308. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said molecular bridging recognizing first portion is selected from the group consisting of a protein and a protein receptor therefore.

309. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said molecular bridging recognizing first portion comprise a nucleic acid.

310. (PREVIOUSLY PRESENTED) The composition according to claim 309, wherein said nucleic acid comprises an oligo- or polynucleotide.

311. (PREVIOUSLY PRESENTED) The composition according to claim 310, wherein said oligo- or polynucleotide comprises a modified oligo- or polynucleotide.

312. (PREVIOUSLY PRESENTED) The composition according to claim 310 wherein said oligo- or polynucleotide comprises one or more nucleotides modified on the sugar phosphate, base, or combinations thereof.

313. (PREVIOUSLY PRESENTED) The composition according to claim 310, wherein said oligo- or polynucleotide is single-stranded or partially double-stranded.

314. (PREVIOUSLY PRESENTED) The composition according to claim 310, wherein said oligo- or polynucleotide is circular or linear.

315. (PREVIOUSLY PRESENTED) The composition according to claim 310, wherein said oligo- or polynucleotide is selected from the group consisting of an oligo- or polyribonucleotide, an oligo- or polydeoxyribonucleotide, a poly-purine, a polypyrimidine and a nucleotide analog-containing oligo- or polynucleotide, or any combination of the foregoing.

316. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said nucleic acid sequence or segment in the molecular bridging entity second portion comprises an oligo- or polynucleotide.

317. (PREVIOUSLY PRESENTED) The composition according to claim 315, wherein said oligo- or polynucleotide comprises a modified oligo- or polynucleotide.

318. (PREVIOUSLY PRESENTED) The composition according to claim 316, wherein said oligo or polynucleotide comprises one or more nucleotides modified on the sugar, phosphate, base or combinations thereof.

319. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said nucleic acid sequences or segments in the molecular bridging entity second portion is single-stranded or partially double-stranded.

320. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said nucleic acid sequences or segments in the molecular bridging entity second portion is linear or circular.

321. (PREVIOUSLY PRESENTED) The composition according to claim 316, wherein said oligo- or polynucleotide is selected from the group consisting of an oligo- or polyribonucleotide, an oligo- or polydeoxyribonucleotide, a poly-purine, a polypyrimidine and a nucleotide analog-containing oligo- or polynucleotide, or any combination of the foregoing.

322. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said nucleic acid sequences or segments in the molecular bridging entity second portion is derived from a phage selected from the group consisting of a T even phage, a filamentous phage, an M13 phage, or, an M 13 phage variant.

323. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said molecular bridging entity second portion comprises a nucleic acid sequence or segment of repeating low complexity.

324. (PREVIOUSLY PRESENTED) The composition according to claim 323, wherein said nucleic acid sequence or segment of repeating low complexity is selected from the group consisting of a poly G or polydeoxy G, poly GT or polydeoxy GT, poly C or polydeoxy C, poly T or polydeoxy T, poly A or polydeoxy A, poly CA or polydeoxy CA, poly GA or polydeoxy GA, poly GAT or polydeoxy GAT, and poly GTA or polydeoxy GTA.

325. (PREVIOUSLY PRESENTED) The composition according to claim 310, wherein said molecular bridging entity first portion and said molecular bridging entity nucleic acid second portion are incapable of hybridizing to identical oligo- or polynucleotide sequences.

326. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said nucleic acid sequences or segments in the molecular bridging entity second portion are covalently attached to one another.

327. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said signalling entity nucleic acid portion comprises an oligo- or polynucleotide.

328. (PREVIOUSLY PRESENTED) The composition according to claim 327, wherein said signalling entity oligo- or polynucleotide is selected from the group consisting of an oligo- or

polyribonucleotide, an oligo- or polydeoxyribonucleotide, a poly-purine, a polypyrimidine and a nucleotide analog-containing oligo- or polynucleotide, or any combination of the foregoing.

329. (PREVIOUSLY PRESENTED) The composition according to claim 327, wherein said oligo- or polynucleotide comprises a modified oligo- or polynucleotide.

330. (PREVIOUSLY PRESENTED) The composition according to claim 327, wherein said oligo- or polynucleotide comprises one or more nucleotides modified on the sugar, phosphate, base or combinations thereof.

331. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said signalling entity nucleic acid portion is single-stranded or partially double-stranded.

332. (PREVIOUSLY PRESENTED) The composition according to any of the claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said signalling entity nucleic acid portion is linear or circular.

333. (PREVIOUSLY PRESENTED) The composition according to claim 332, wherein said signalling entity nucleic acid portion is a polymer derived from a linear or circular nucleic acid molecule covalently attached to a signal generating portion or a signalling chemical moiety.

334. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said signalling entity nucleic acid portion is derived from a phage selected from the group consisting of a T even phage, a filamentous phage, and an M 13 phage, or an M 13 phage variant.

335. (PREVIOUSLY PRESENTED) The composition according to claim 329, wherein said signalling entity modified oligo- or polynucleotide comprises a naturally occurring modified oligo- or polynucleotide.

336. (PREVIOUSLY PRESENTED) The composition according to claim 335, wherein said signalling entity modified oligo- or polynucleotide carries a cloned insert.

337. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said signalling entity nucleic acid portion comprises a nucleic acid sequence or segment of repeating low complexity.

338. (PREVIOUSLY PRESENTED) The composition according to claim 337, wherein said nucleic acid sequence or segment of repeating low complexity is selected from the group consisting of a poly G or polydeoxy G, poly GT or polydeoxy GT, poly C or polydeoxy C, poly T or polydeoxy T, poly A or polydeoxy A, poly CA or polydeoxy CA, poly GA or polydeoxy GA, poly GAT or polydeoxy GAT, and poly GTA or polydeoxy GTA.

339. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said signal generating portion or said one or more chemically modified or artificially altered polynucleotides are capable of directly providing a detectable signal.

340. (PREVIOUSLY PRESENTED) The composition according to claim 339, wherein said direct signal providing signal generating portion comprises a radioactive compound.

341. (PREVIOUSLY PRESENTED) The composition according to claim 339, wherein said direct signal providing signal generating portion is selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound and an electron dense compound.

342. (PREVIOUSLY PRESENTED) The composition according to claim 339, wherein said direct signal providing signal generating portion comprises an enzyme.

343. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said signal generating portion or said one or more chemically modified or artificially altered polynucleotides are indirectly capable of indirectly providing a detectable signal.

344. (PREVIOUSLY PRESENTED) The composition according to claim 343, wherein said indirect signal providing signal generating portion is selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand and an enzyme.

345. (PREVIOUSLY PRESENTED) The composition according to claim 343, wherein said indirect signal providing signal generating portion comprises a polynucleotide sequence capable of recognizing a signal-containing moiety.

346. (PREVIOUSLY PRESENTED) The composition according to claim 343, wherein said indirect signal providing signal generating portion comprises a compound capable of binding to an insoluble phase.

347. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said signal generating portion or said one or more chemically modified or artificially altered polynucleotides are capable of being detected by a member selected from the group consisting of an enzymatic measurement, a fluorescent measurement, a phosphorescent measurement, a chemiluminescent measurement, a colorimetric measurement, a microscopic measurement, an electron density measurement, and a radioactive measurement.

348. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is greater than 5.

349. (PREVIOUSLY PRESENTED) The composition according to claim 348, wherein the ratio is greater than 10.

350. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein the ratio of the signal generating portions or the one or more chemically modified or artificially altered polynucleotides to the nucleic acid portion in any or all of the signalling entities is greater than 1.

351. (PREVIOUSLY PRESENTED) The composition according to claim 350, wherein the ratio is greater than 5.

352. (PREVIOUSLY PRESENTED) The composition according to claim 351, wherein the ratio is greater than 10.

353. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein both the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is greater than 1, and the ratio of the signal generating portions or the one or more chemically modified or artificially altered polynucleotides to the nucleic acid portion in any or all of the signalling entities are greater than 1.

354. (PREVIOUSLY PRESENTED) The composition according to claim 353, wherein one or both ratios are greater than 5.

355. (PREVIOUSLY PRESENTED) The composition according to claim 354, wherein one or both ratios are greater than 10.

356. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein the ratio of signalling entities to molecular bridging entity is greater than 5.

357. (PREVIOUSLY PRESENTED) The composition according to claim 356, wherein the ratio is greater than 10.

358. (PREVIOUSLY PRESENTED) The composition according to any of claims 284, 286, 288, 290, 293 or 294, wherein the analyte is immobilized.

359. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein the molecular bridging entity is immobilized.

360. (PREVIOUSLY PRESENTED) An article of manufacture comprising:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity second portion nucleic acid sequences or segments, and one or more signal generating portions, each capable of providing a detectable signal.

361. (PREVIOUSLY PRESENTED) An article of manufacture comprising:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity second portion nucleic acid sequences or segments, and one or more polynucleotides which have been chemically modified or artificially altered.

362. (PREVIOUSLY PRESENTED) The article of manufacture according to claims 360 or 361, further comprising the analyte.

364. (PREVIOUSLY PRESENTED) The process according to claims 443, 445, or 447 characterized in that said forming step comprises contacting said analyte with said bridging entity to form a first complex and thereafter contacting the first complex with said signalling entity to form said complex recited in said forming step.

365. (PREVIOUSLY PRESENTED) The process according to claims 443, 445, or 447, characterized in that said forming step comprises contacting said bridging entity with said signalling entity under conditions sufficient to form a first complex and thereafter contacting the first complex with said analyte under conditions sufficient to form said complex recited in said forming step.

366. (PREVIOUSLY PRESENTED) The process according to claim 363, wherein detecting is directly carried out by means of a detectable signal provided by said signal generating portion.

367. (PREVIOUSLY PRESENTED) The process according to claim 366, wherein said detecting step the direct detectable signal provided by said signal generating portion comprises a radioactive compound.

368. (PREVIOUSLY PRESENTED) The process according to claim 366, wherein said detecting step the direct detectable signal is provided by a member selected from the group consisting of a flurogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound and an electron dense compound.

369. (PREVIOUSLY PRESENTED) The process according to claim 368, wherein said detecting step the signal generating portion comprises an enzyme.

370. (PREVIOUSLY PRESENTED) The process according to claim 363, wherein detecting is indirectly carried out by means of a detectable signal provided by said signal generating portion.

371. (PREVIOUSLY PRESENTED) The process according to claim 370, wherein said detecting step the signal generating portion is selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand and an enzyme.

372. (PREVIOUSLY PRESENTED) The process according to claim 370, wherein said detecting step the signal generating portion comprises a polynucleotide sequence capable of recognizing a signal-containing moiety.

373. (PREVIOUSLY PRESENTED) The process according to claim 370, wherein said detecting step the signal generating portion comprises a compound capable of binding to an insoluble phase.

374. (PREVIOUSLY PRESENTED) The process according to claim 363, wherein said signal generating portion is capable of being detected by a member selected from the group consisting of an enzymatic measurement, a fluorescent measurement, a phosphorescent measurement, a chemiluminescent measurement, a colorimetric measurement, a microscopic measurement, an electron density measurement, a radioactive measurement and a binding step on an insoluble phase.

375. (PREVIOUSLY PRESENTED) The process according to claim 363, wherein the analyte is fixed or immobilized.

376. (PREVIOUSLY PRESENTED) The process according to claim 375, wherein fixing or immobilizing the analyte takes place before forming the complex in said complex forming step.

377. (PREVIOUSLY PRESENTED) The process according to claim 375, wherein fixing or immobilizing the analyte takes place after forming the complex in said complex forming step.

378. (PREVIOUSLY PRESENTED) The process according to claim 375, further comprising one or more washing steps.

379. (PREVIOUSLY PRESENTED) The process according to claim 363, wherein the molecular bridging entity is immobilized.

380. (PREVIOUSLY PRESENTED) The process according to claim 279, further comprising one or more washing steps.

382. (PREVIOUSLY PRESENTED) The process according to claims 449, 451, or 453, characterized in that said forming step comprises contacting said analyte with said bridging entity to form a first complex and thereafter contacting the first complex with said signalling entity to form said complex recited in said forming step.

383. (PREVIOUSLY PRESENTED) The process according to claims 449, 451 or 453, characterized in that said forming step comprises contacting said bridging entity with said signalling entity under conditions sufficient to form a first complex and thereafter contacting the first complex with said analyte to form said complex recited in said forming step.

384. (PREVIOUSLY PRESENTED) The process according to claim 381, wherein detecting is directly carried out by means of a detectable signal provided by said signal generating portion.

385. (PREVIOUSLY PRESENTED) The process according to claim 384, wherein said detecting step the direct detectable signal provided by said signal generating portion comprises a radioactive compound.

386. (PREVIOUSLY PRESENTED) The process according to claim 384, wherein said detecting step the direct detectable signal is provided by a member selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound and an electron dense compound.

387. (PREVIOUSLY PRESENTED) The process according to claim 386, wherein said detecting step the signal generating portion comprises an enzyme.

388. (PREVIOUSLY PRESENTED) The process according to claim 381, wherein detecting is indirectly carried out by means of a detectable signal provided by said signal generating portion.

389. (PREVIOUSLY PRESENTED) The process according to claim 386, wherein said detecting step the signal generating portion is selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand and an enzyme.

390. (PREVIOUSLY PRESENTED) The process according to claim 388, wherein said detecting step the signal generating portion comprises a polynucleotide sequence capable of recognizing a signal-containing moiety.

391. (PREVIOUSLY PRESENTED) The process according to claim 388, wherein said detecting step the signal generating portion comprises a compound capable of binding to an insoluble phase.

392. (PREVIOUSLY PRESENTED) The process according to claim 381, wherein said signal generating portion is capable of being detected by a member selected from the group consisting of an enzymatic measurement, a fluorescent measurement, a phosphorescent measurement, a chemiluminescent measurement, a colorimetric measurement, a microscopic measurement, an electron density measurement, a radioactive measurement and a binding step on an insoluble phase.

393. (PREVIOUSLY PRESENTED) The process according to claim 381, wherein the analyte is fixed for immobilized.

394. (PREVIOUSLY PRESENTED) The process according to claim 393, wherein fixing or immobilizing the analyte takes place before forming the complex in said complex forming step.

395. (PREVIOUSLY PRESENTED) The process according to claim 393, wherein fixing or immobilizing the analyte takes place after forming the complex in said complex forming step.

396. (PREVIOUSLY PRESENTED) The process according to claim 393, further comprising one or more washing steps.

397. (PREVIOUSLY PRESENTED) The process according to claim 381, wherein the molecular bridging entity is immobilized.

398. (PREVIOUSLY PRESENTED) The process according to claim 397, further comprising one or more washing steps.

400. (PREVIOUSLY PRESENTED) The process according to claims 455, 457 or 458, characterized in that said forming step comprises contacting said fixed or immobilized analyte with said bridging entity to form a first complex and thereafter contacting the first complex with said signalling entity to form said complex comprising said composition and said analyte recited in said forming step.

401. (PREVIOUSLY PRESENTED) The process according to claims 455, 457 or 458, characterized in that said forming step comprises contacting said bridging entity with said signalling entity under conditions sufficient to form a first complex and thereafter contacting the first complex with said fixed or immobilized analyte under conditions sufficient to form said complex comprising said composition and said analyte recited in said forming step.

402. (PREVIOUSLY PRESENTED) The process according to claim 399, further comprising one or more washing steps prior to detection.

403. (PREVIOUSLY PRESENTED) The process according to claim 400, further comprising one or more washing steps prior to detection.

404. (PREVIOUSLY PRESENTED) The process according to claim 401, further comprising one or more washing steps prior to detection.

406. (PREVIOUSLY PRESENTED) The process according to claim 459 characterized in that said forming step comprises contacting said fixed or immobilized analyte with said bridging entity to form a first complex and thereafter contacting the first complex with said signalling entity to form said complex comprising said composition and said analyte recited in said forming step.

407. (PREVIOUSLY PRESENTED) The process according to claim 459 characterized in that said forming step comprises contacting said bridging entity with said signalling entity under conditions sufficient to form a first complex and thereafter contacting the fixed or immobilized analyte with the first complex under conditions sufficient to form said complex comprising said composition and said analyte recited in said forming step.

408. (PREVIOUSLY PRESENTED) The process according to claim 405, further comprising one or more washing steps prior to detection.

409. (PREVIOUSLY PRESENTED) The process according to claim 406, further comprising one or more washing steps prior to detection.

410. (PREVIOUSLY PRESENTED) The process according to claim 407, further comprising one or more washing steps prior to detection.

411. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:

- (i) a container carrying a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable portion on said analyte, and a second portion comprising one, or more nucleic acid sequences or segments; and

- (ii) a container carrying more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity second portion nucleic acid sequence or segment, and one or more signal generating portions, each such portion being capable of providing a detectable signal.

412. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:

a container carrying a complex which comprises:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable portion, and a second portion comprising one or more nucleic acid sequences or segments; and

more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity second portion, and one or more signal generating portions, each such portion being capable of providing a detectable signal.

413. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:

a container carrying more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a container carrying more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion to form a polynucleotide hybrid, and one or more signal generating portions, capable of providing a detectable signal.

414. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon comprising as components thereof:

more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal.

415. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:

a complex which comprises:

(i) more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

(ii) more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal.

416. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more polynucleotides which have been chemically modified or artificially altered.

417. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:

a complex which comprises:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion to form a polynucleotide hybrid, and one or more; polynucleotides which have been chemically modified or artificially altered.

418. (PREVIOUSLY PRESENTED) The kit according to any of claim 411, 412, 413, 414 or 415, further comprising means to detect a signal from said signal generating portion.

419. (PREVIOUSLY PRESENTED) The kit according to claims 416 or 417, further comprising means to detect a signal from said one or more chemically modified or artificially altered polynucleotides.

420. (PREVIOUSLY PRESENTED) The kit according to any of claims 411, 412, 413, 414 or 415, wherein the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is greater than 5.

421. (PREVIOUSLY PRESENTED) The kit according to claim 420, wherein the ratio is greater than 10.

422. (PREVIOUSLY PRESENTED) The kit according to any of claims 411, 412, 413, 414 or 415, wherein the ratio of the signal generating portions to the nucleic acid portion in any or all of the signalling entities is greater than 1.

423. (PREVIOUSLY PRESENTED) The kit according to claims 416 or 417, wherein the ratio of the one or more chemically modified or artificially altered polynucleotides to the nucleic acid portion in any or all of the signalling entities is greater than 1.

424. (PREVIOUSLY PRESENTED) The kit according to claim 423, wherein the ratio is greater than 5.

425. (PREVIOUSLY PRESENTED) The kit according to claim 424, wherein the ratio is greater than 10.

426. (PREVIOUSLY PRESENTED) The kit according to, any of claims 411, 412, 413, 414 or 415, wherein both the ratio of the nucleic acid sequences or segments in the second portion to the first

portion of the molecular bridging entity is greater than 1, and the ratio of the signal generating portions to the nucleic acid portion in any or all of the signalling entities is greater than 1.

427. (PREVIOUSLY PRESENTED) The kit according to claims 416 or 417, wherein both the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is greater than 1, and the ratio of the one or more chemically modified or artificially altered polynucleotides to the nucleic acid portion in any or all of the signalling entities is greater than 1.

428. (PREVIOUSLY PRESENTED) The kit according to claim 426, wherein one or both ratios are greater than 5.

429. (PREVIOUSLY PRESENTED) The kit according to claim 428, wherein one or both ratios are greater than 10.

430. (PREVIOUSLY PRESENTED) The kit according to claim 427, wherein one or both ratios are greater than 5.

431. (PREVIOUSLY PRESENTED) The kit according to claim 430, wherein one or both ratios are greater than 10.

432. (PREVIOUSLY PRESENTED) The kit according to any of claims 411, 412, 413, 414, 415, 416 or 417, wherein the ratio of signalling entities to the molecular bridging entity is greater than 5.

433. (PREVIOUSLY PRESENTED) The kit according to claim 432, wherein the ratio is greater than 10.

434. (PREVIOUSLY PRESENTED) The kit according to any of claims 411, 412, 413, 414 or 415, wherein said signal generating portion is carried in a separate container from the container carrying

the signalling entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion.

435. (PREVIOUSLY PRESENTED) The kit according to claims 416 or 417, wherein said one or more chemically modified or artificially altered polynucleotides are carried in a separate container from the container carrying the signalling entity comprising a nucleic acid, portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion.

436. (PREVIOUSLY PRESENTED) The kit according to any of claims 411, 412, 413, 414, 415, 416 or 417, wherein said analyte comprises a biological system.

437. (PREVIOUSLY PRESENTED) The kit according to any of claims 411, 412, 413, 414, 415, 416 or 417, further comprising one or more solid supports.

438. (PREVIOUSLY PRESENTED) The composition according to claims 291, 292, 293 or 294, wherein said one or more chemically modified or artificially altered polynucleotides comprise one or more nucleic acid analogs.

439. (PREVIOUSLY PRESENTED) The process according to claims 442, 443, 445, 447, 449, 451, 453, 455, 457, 458 or 459, wherein said step of detecting the analyte by a signal provided by said signal generating portion or portions present in said complex comprises carrying out a binding step on an insoluble phase.

441. (PREVIOUSLY PRESENTED) The composition according to claim 309, wherein the nucleic acid in said molecular bridging entity recognizing first portion and said molecular bridging entity nucleic acid second portion are incapable of hybridizing to identical oligo- or polynucleotide sequences.

442. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing the composition of claim 462;
forming a complex comprising said composition and said analyte; and detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

443. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising:

a first part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a second part which comprises one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal;

forming a complex comprising said composition and said analyte; and

detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

444. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising a complex which comprises:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal;

forming a complex comprising said composition and said analyte; and

detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

445. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising:

a first part which comprises more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a second part which comprises one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal.

forming a complex comprising said composition and said analyte; and
detecting said analyte by a signal provided by said signal generating, portion or portions present in said complex.

446. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising a complex which comprises:

more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal;

forming a complex comprising said composition and said analyte; and

detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

447. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising:

a first part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a second part which comprises one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of providing a detectable signal;

forming a complex comprising said composition and said analyte; and

detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

448. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising a complex which comprises:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of providing a detectable signal;

forming a complex comprising said composition and said analyte; and

detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

449. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising:

a first part which comprises an analyte having one or more molecularly recognizable portions thereon;

a second part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable analyte portion, and a second portion comprising one or more nucleic acid sequences or segments; and

a third part which comprises one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion or portions on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal;

forming a complex comprising the components of said composition and said analyte; and

detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

450. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising a complex which comprises:

an analyte having one or more molecularly recognizable portions thereon;

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable analyte portion and a second portion comprising one or more nucleic acid sequences or segments; and

one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion

capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal;
forming a complex comprising the components of said composition and said analyte; and
detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

451. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising:

a first part which comprises an analyte having one or more molecularly recognizable portions thereon;

a second part which comprises more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable analyte portion and a second portion comprising one or more nucleic acid sequences or segments; and

a third part which comprises one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal;

forming a complex comprising the components of said composition and said analyte; and
detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

452. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising a complex which comprises:

an analyte having one or more molecularly recognizable portions thereon;

more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable analyte portion and a second portion comprising one or more nucleic acid sequences or segments; and

one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal;

forming a complex comprising the components of said composition and said analyte; and

detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

453. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising:

a first part which comprises an analyte having one or more molecularly recognizable portions thereon;

a second part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a third part which comprises one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of providing a detectable signal;

forming a complex comprising the components of said composition and said analyte; and

detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

454. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising a complex which comprises:
an analyte having one or more molecularly recognizable portions thereon;
a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and
one or more signalling entities substantially, incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of providing a detectable signal;
forming a complex comprising the components of said composition and said analyte; and
detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

455. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition which comprises:
a first part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and
a second part which comprises one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal;
fixing or immobilizing said analyte or a sample containing said analyte to a solid support;
forming a complex comprising, said composition and said analyte; and
detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

456. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition of matter comprising a complex which comprises:
a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and
one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portion capable of providing a detectable signal;
fixing or immobilizing said analyte or a sample containing said analyte to a solid support;
forming a complex comprising said composition and said analyte; and
detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

457. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition comprising:
a first part which comprises more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and
a second part which comprises one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal;
fixing or immobilizing said analyte or a sample containing said analyte to a solid support;
forming a complex comprising said composition and said analyte; and

detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

458. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

providing a composition comprising:

more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal; fixing or immobilizing said analyte or a sample containing said analyte to a solid support;

forming a complex comprising said composition and said analyte; and

detecting said analyte by a signal provided by said signal generating portion or portions present in said complex.

459. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

fixing or immobilizing said analyte or a sample containing said analyte to a solid support;

providing a composition comprising:

a first part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a second part which comprises one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of providing a detectable signal;

forming a complex comprising said composition and said analyte; and
detecting said analyte by a signal provided by means of said signal generating portion or portions present in said complex.

460. (PREVIOUSLY PRESENTED) A process for detecting an analyte having one or more molecularly recognizable portions thereon, comprising:

fixing or Immobilizing said analyte or a sample containing said analyte to a solid support;
providing a composition comprising a complex which comprises:
a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of providing a detectable signal;

forming a complex comprising said composition and said analyte; and
detecting said analyte by a signal provided by means of said signal generating portion or portions present in said complex.

461. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said signal generating portion or said one or more chemically modified or artificially altered polynucleotides are capable of being detected by a binding member in an insoluble phase.

462. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 286, 287, 288, 289, 291, 292, 293 or 294, wherein the nucleic acid in said molecular bridging entity recognizing first portion and said molecular bridging entity nucleic acid second portion are incapable of hybridizing to identical oligo- or polynucleotide sequences.

463. (PREVIOUSLY PRESENTED) The composition according to any of claims 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293 or 294, wherein said molecular bridging entity comprises a polymer selected from the group consisting of a nucleic acid-protein polymer, a nucleic acid-polypeptide polymer, a nucleic acid-polysaccharide polymer and a polypeptide-polysaccharide polymer, said polymer comprising one or more chemically modified purines, one or more chemically modified pyrimidines, one or more chemically modified sugar moieties, or one or more chemically modified phosphate moieties, or a combination of any of the foregoing.

464. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, said analyte molecularly recognizable portion comprising a biological system selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said cell or cellular component thereof comprising a bacterium or a bacterial component thereof, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments; and

a second part which comprises one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

465. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises an analyte having one or more molecularly recognizable portions thereon, said analyte molecularly recognizable portion comprising a biological system selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said cell or cellular component thereof comprising a bacterium or a bacterial component thereof;

a second part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable analyte portion, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments; and

a third part which comprises one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion or portions on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

466. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a complex which comprises:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, said analyte molecularly recognizable portion comprising a biological system selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said cell or cellular component

thereof comprising a bacterium or a bacterial component thereof, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments;

and one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

467. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a complex which comprises:

an analyte having one or more molecularly recognizable portions thereon;

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable analyte portion, said analyte molecularly recognizable portion comprising a biological system selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said cell or cellular component thereof comprising a bacterium or a bacterial component thereof, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid

second portion, and one or more signal generating portions capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

468. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, said analyte molecularly recognizable portion comprising a biological system selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said cell or cellular component thereof comprising a bacterium or a bacterial component thereof, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments; and

a second part which comprises one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

469. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises an analyte having one or more molecularly recognizable portions thereon;

a second part which comprises more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable analyte portion, said analyte molecularly recognizable portion comprising a biological system selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said cell or cellular component thereof comprising a bacterium or a bacterial component thereof, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments; and

a third part which comprises one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

470. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a complex which comprises:

more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, said analyte molecularly recognizable portion comprising a biological system selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said

cell or cellular component thereof comprising a bacterium or a bacterial component thereof, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

471. (PREVIOUSLY PRESENTED) A composition of matter comprising:
a complex which comprises:

an analyte having one or more molecularly recognizable portions thereon;
more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable analyte portion, said analyte molecularly recognizable portion comprising a biological system selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said cell or cellular component thereof comprising a bacterium or a bacterial component thereof, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments; and

one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said more than one bridging entity nucleic acid second portion, and one or more signal generating portions capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

472. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, said analyte molecularly recognizable portion comprising a biological system selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said cell or cellular component thereof comprising a bacterium or a bacterial component thereof, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments; and

a second part which comprises one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal

generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

473. (PREVIOUSLY PRESENTED) A composition of matter comprising:
a complex which comprises:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, said analyte molecularly recognizable portion comprising a biological system selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said cell or cellular component thereof comprising a bacterium or a bacterial component thereof, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments;
and

one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

474. (PREVIOUSLY PRESENTED) A composition of matter comprising:

a first part which comprises an analyte having one or more molecularly recognizable portions thereon, said analyte molecularly recognizable portion comprising a biological system

selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said cell or cellular component thereof comprising a bacterium or a bacterial component thereof;

a second part which comprises a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments; and

a third part which comprises one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

475. (PREVIOUSLY PRESENTED) A composition of matter comprising:
a complex which comprises:

an analyte having one or more molecularly recognizable portions thereon;
a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, said analyte molecularly recognizable portion comprising a biological system selected from the group consisting of a virus or a viral component thereof and a cell or a cellular component thereof, said cell or cellular component thereof comprising a bacterium or a bacterial component thereof, said first portion being selected from the group consisting of an antigen, a polyclonal or a monoclonal antibody, a hormone, a

receptor, an enzyme, an allosteric effector, an enzyme substrate, an enzyme cofactor, a protein and a protein receptor, and a second portion comprising one or more nucleic acid sequences or segments;
and

one or more non-radioactive signalling entities substantially incapable of binding to or hybridizing with the molecularly recognizable portion on said analyte, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more chemically modified or artificially altered polynucleotides capable of directly or indirectly providing a detectable signal, said direct signal providing signal generating portion being selected from the group consisting of a fluorogenic compound, a phosphorescent compound, a chromogenic compound, a chemiluminescent compound, an electron dense compound, an enzyme, and said indirect signal providing signal generating portion being selected from the group consisting of an antibody, an antigen, a hapten, a receptor, a ligand, an enzyme, a polynucleotide sequence capable of recognizing a signal-containing moiety, and a compound capable of binding to an insoluble phase.

476. (PREVIOUSLY PRESENTED) The composition according to any of claims 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474 or 475, wherein said nucleic acid sequences or segments in the molecular bridging entity second portion, or said signalling entity nucleic acid portion, or both, are derived from the group consisting of a T even phage, a filamentous phage, and a M13 phage or an M13 phage variant.

477. (PREVIOUSLY PRESENTED) The composition according to any of claims 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474 or 475, wherein the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is selected from the group consisting of a number greater than 5 and a number greater than 10, and wherein the ratio of the signal generating portions or the one or more chemically modified or artificially altered polynucleotides to the nucleic acid portion in any or all of the signalling entities is selected from the group consisting of a number greater than 5 and a number greater than 10.

478. (PREVIOUSLY PRESENTED) The composition according to claim 477, wherein both the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity, and the ratio of the signal generating portions or the one or more chemically modified or artificially altered polynucleotides to the nucleic acid portion in any or all of the signalling entities is selected from the group consisting of a number greater than 1, a number greater than 5 and a number greater than 10.

479. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:

(i) a container carrying a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable portion on said analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a container carrying more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity second portion nucleic acid sequence or segment, and one or more signal generating portions, each such portion being capable of providing a detectable signal;

wherein the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is selected from a number greater than 5 and a number greater than 10; or

wherein both the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity and the ratio of the signal generating portions to the nucleic acid portion in any or all of the signalling entities is selected from a number greater than 1, a number greater than 5 and a number greater than 10.

480. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:

a container carrying a complex which comprises:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable portion, and a second portion comprising one or more nucleic acid sequences or segments; and

more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity second portion, and one or more signal generating portions, each such portion being capable of providing a detectable signal;

wherein the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is selected from a number greater than 5 and a number greater than 10; or

wherein both the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity and the ratio of the signal generating portions to the nucleic acid portion in any or all of the signalling entities is selected from a number greater than 1, a number greater than 5 and a number greater than 10.

481. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:

a container carrying more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

a container carrying more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion to form a polynucleotide hybrid, and one or more signal generating portions capable of providing a detectable signal;

wherein the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is selected from a number greater than 5 and a number greater than 10; or

wherein both the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity and the ratio of the signal generating portions to the nucleic acid portion in any or all of the signalling entities is selected from a number greater than 1, a number greater than 5 and a number greater than 10.

482. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:
more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal;

wherein the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is selected from a number greater than 5 and a number greater than 10; or

wherein both the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity and the ratio of the signal generating portions to the nucleic acid portion in any or all of the signalling entities is selected from a number greater than 1, a number greater than 5 and a number greater than 10.

483. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:
a complex which comprises:

(i) more than one molecular bridging entity, each such entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

(ii) more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more signal generating portions capable of providing a detectable signal;

wherein the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is selected from a number greater than 5 and a number greater than 10; or

wherein both the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity and the ratio of the signal generating portions to

the nucleic acid portion in any or all of the signalling entities is selected from a number greater than 1, a number greater than 5 and a number greater than 10.

484. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:
a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion, and one or more polynucleotides which have been chemically modified or artificially altered;

wherein the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is selected from a number greater than 5 and a number greater than 10; or

wherein one or both the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity and the ratio of the one or more chemically modified or artificially altered polynucleotides to the nucleic acid portion in any or all of the signalling entities is selected from a number greater than 1, a number greater than 5 and a number greater than 10.

485. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:

a complex which comprises:

a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with a molecularly recognizable portion on an analyte, and a second portion comprising one or more nucleic acid sequences or segments; and

more than one non-radioactive signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion to form a polynucleotide hybrid, and one or more polynucleotides which have been chemically modified or artificially altered;

wherein the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity is selected from a number greater than 5 and a number greater than 10; or

wherein one or both the ratio of the nucleic acid sequences or segments in the second portion to the first portion of the molecular bridging entity and the ratio of the one or more chemically modified or artificially altered polynucleotides to the nucleic acid portion in any or all of the signalling entities is selected from a number greater than 1, a number greater than 5 and a number greater than 10.

486. (PREVIOUSLY PRESENTED) The kit of any of claims 479, 480, 481, 482 or 483, wherein said signal generating portion is carried in a separate container from the container carrying the signalling entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion.

487. (PREVIOUSLY PRESENTED) The kit of claims 484 or 485, wherein said one or more chemically modified or artificially altered polynucleotides are carried in a separate container from the container carrying the signalling entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity nucleic acid second portion.

488. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 443, said kit comprising as components thereof the first part and the second part of the composition provided in said process.

489. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 444, said kit comprising as components thereof said complex provided as a composition in said process.

490. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 445, said kit comprising as components thereof said first part and said second part provided as a composition in said process.

491. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 446, said kit comprising as components thereof said complex provided as a composition in said process.

492. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 447, said kit comprising as components thereof said first part and said second part provided as a composition in said process.

493. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 448, said kit comprising as components thereof said complex provided as a composition in said process.

494. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 449, said kit comprising as components thereof said first part, said second part and said third part provided as a composition in said process.

495. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 450, said kit comprising as components thereof said complex provided as a composition in said process.

496. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 451, said kit comprising as components thereof said first part, said second part and said third part provided as a composition in said process.

497. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 452, said kit comprising as components thereof said complex provided as a composition in said process.

498. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 453, said kit comprising as components thereof said first part, said second part and said third part provided as a composition in said process.

499. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 454, said kit comprising as components thereof said complex provided as a composition in said process.

500. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 455, said kit comprising as components thereof said first part and said second part provided as a composition and said solid support in said process.

501. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 456, said kit comprising as components thereof said complex provided as a composition and said solid support in said process.

502. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 457, said kit comprising as components thereof said first part and said second part provided as a composition and said solid support in said process.

503. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 458, said kit comprising as components thereof said composition provided and said solid support in said process.

504. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 459, said kit comprising as components thereof said first part and said second part provided as a composition and said solid support in said process.

505. (PREVIOUSLY PRESENTED) A kit for use in carrying out the process of claim 460, said kit comprising as components thereof said complex provided as a composition and said solid support in said process.

506. (PREVIOUSLY PRESENTED/NOT ENTERED) A polynucleotide sequence covalently attached to an antibody.

507. (PREVIOUSLY PRESENTED/NOT ENTERED) The polynucleotide sequence of claim 506, wherein said antibody is monoclonal.

508. (PREVIOUSLY PRESENTED/NOT ENTERED) A polynucleotide sequence covalently attached to a lectin.

509. (PREVIOUSLY PRESENTED/NOT ENTERED) A polynucleotide sequence covalently attached to a saccharide having up to 20 saccharide units.

510. (PREVIOUSLY PRESENTED/NOT ENTERED) A polynucleotide sequence covalently attached to a receptor.

511. (PREVIOUSLY PRESENTED/NOT ENTERED) A polynucleotide sequence covalently attached to a hormone.

512. (PREVIOUSLY PRESENTED/NOT ENTERED) A DNA molecule carrying a polynucleotide portion which comprises a sequence selected from the group consisting of poly dGT', poly dAC, poly dCT, poly dAT, poly dGC, poly dGA, poly dG, poly dC, poly dT, poly dA, and a sequence or segment of repeating low complexity.

513. (PREVIOUSLY PRESENTED/NOT ENTERED) A filamentous phage containing the DNA molecule of claim 512.

514. (PREVIOUSLY PRESENTED/NOT ENTERED) The phage of claim 513, comprising a M13 phage or a M13 phage variant.

515. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 512, wherein said sequence is an oligonucleotide.

516. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 512, further carrying a polynucleotide sequence complementary to a gene sequence or portion thereof of a nucleic acid containing organism.

517. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 516, wherein said organism is selected from the group consisting of a virus, a prokaryotic cell and a eukaryotic cell.

518. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 517, wherein said prokaryotic cell is a bacterium.

519. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 517, wherein said eukaryotic cell is a mammalian cell.

520. (PREVIOUSLY PRESENTED/NOT ENTERED) A filamentous phage containing the DNA molecule of claim 516.

521. (PREVIOUSLY PRESENTED/NOT ENTERED) The filamentous phage of claim 520, comprising a M13 phage or a M13 phage variant.

522. (PREVIOUSLY PRESENTED/NOT ENTERED) A circular DNA molecule covalently attached to a non-radiolabeled signal generating moiety.

523. (PREVIOUSLY PRESENTED/NOT ENTERED) A filamentous phage containing the circular DNA molecule of claim 522.

524. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 522, further carrying a polynucleotide portion which comprises a sequence selected from the group consisting of poly dGT, poly dAC, poly dCT, poly dAT, poly dGC, poly dGA, poly dG, poly dC, poly dT, poly dA, and a sequence or segment of repeating low complexity.

525. (PREVIOUSLY PRESENTED/NOT ENTERED) The circular DNA molecule of claim 522, which carries a polynucleotide portion which is rich in cytosine residues.

526. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 524, wherein said sequence is an oligonucleotide.

527. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 522, further carrying a polynucleotide portion which comprises a sequence coding for part or whole of a gene.

528. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 522, wherein said signal generating moiety comprises an enzyme.

529. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 527, wherein said signal generating moiety comprises a biotin moiety.

530. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 527, wherein said signal generating moiety comprises an antibody.

531. (PREVIOUSLY PRESENTED/NOT ENTERED) The DNA molecule of claim 527, wherein said signal generating moiety comprises a fluorogenic compound.

532. (PREVIOUSLY PRESENTED) The process of claim 443, wherein said analyte is a DNA sequence, said bridging entity is a single-stranded DNA sequence, and said signalling entities are single-stranded DNA sequences.

533. (PREVIOUSLY PRESENTED) The process of claim 532, wherein said bridging entity is derived from a filamentous phage.

534. (PREVIOUSLY PRESENTED) The process of claim 533, wherein said signalling entities are derived from filamentous phages.

535. (PREVIOUSLY PRESENTED) The process of claim 534, wherein said bridging entity codes for a gene product or fragment thereof, and said forming step comprises either (i) contacting said

analyte with said bridging entity to form a first complex and thereafter contacting said first complex with said signalling entities to form said detectable complex or (ii) contacting said bridging entity with said signalling entities to form a first complex and thereafter contacting said first complex with said analyte to form said detectable complex.

536. (PREVIOUSLY PRESENTED) The process of claim 443, wherein said analyte is a polynucleotide, said one or more nucleic acid sequences or segments of said second portion are repeating low-complexity nucleic acid sequences or segments, and said one or more nucleic acid sequences or segments of said second portion are incapable of hybridizing to the analyte.

537. (PREVIOUSLY PRESENTED) The process of claim 536, wherein said signal is amplified because the ratio of the signalling entities to the bridging entity exceeds 5.

538. (PREVIOUSLY PRESENTED) The kit of claim 411, wherein said analyte is a polynucleotide, said one or more nucleic acid sequences or segments of said second portion are repeating low-complexity nucleic acid sequences or segments, and said one or more nucleic acid sequences or segments of said second portion are incapable of hybridizing to the analyte.

539. (PREVIOUSLY PRESENTED) The kit of claim 538, wherein said signal is amplified because the ratio of the signalling entities to the bridging entity exceeds 5.

540. (PREVIOUSLY PRESENTED) The process of claim 443, wherein said analyte is a single-stranded DNA sequence fixed to a solid support, said bridging entity comprises non-naturally occurring or artificially modified DNA, said bridging entity first portion comprises a linear single-stranded polynucleotide sequence, said bridging entity first portion is covalently bound to said bridging entity second portion, and said bridging entity second portion is single-stranded and linear and comprises more than one of said nucleic acid sequences or segments.

541. (PREVIOUSLY PRESENTED) The process of claim 540, wherein said signalling entities are single-stranded oligo- or polynucleotide sequences, said bridging entity first portion is capable of

encoding a gene product or fragment thereof, and the process further comprises one or more washing steps prior to detection.

542. (PREVIOUSLY PRESENTED) The composition of claim 283, wherein said analyte is a single-stranded DNA sequence fixed to a solid support, said bridging entity comprises non-naturally occurring or artificially modified DNA, said bridging entity first portion comprises a linear single-stranded polynucleotide sequence, said bridging entity first portion is covalently bound to said bridging entity second portion, and said bridging entity second portion is single-stranded and linear and comprises more than one of said nucleic acid sequences or segments.

543. (PREVIOUSLY PRESENTED) The composition of claim 542, wherein said signalling entities are single-stranded oligo- or polynucleotide sequences and said bridging entity first portion is capable of encoding a gene product or fragment thereof.

544. (PREVIOUSLY PRESENTED) The kit of claim 411, wherein said analyte is a single-stranded DNA sequence fixed to a solid support, said bridging entity comprises non-naturally occurring or artificially modified DNA, said bridging entity first portion comprises a linear single-stranded polynucleotide sequence, said bridging entity first portion is covalently bound to said bridging entity second portion, and said bridging entity second portion is single-stranded and linear and comprises more than one of said nucleic acid sequences or segments.

545. (PREVIOUSLY PRESENTED) The kit of claim 544, wherein said signalling entities are single-stranded oligo- or polynucleotide sequences and said bridging entity first portion is capable of encoding a gene product or fragment thereof.

546. (PREVIOUSLY PRESENTED) A kit for the detection in a sample of an analyte having one or more molecularly recognizable portions thereon, comprising as components thereof:

(i) a container carrying a molecular bridging entity comprising a first portion capable of recognizing and binding to or hybridizing with said molecularly recognizable portion on said analyte, and a second portion comprising one, or more nucleic acid sequences or segments; and

(ii) a container carrying more than one signalling entity, each such entity comprising a nucleic acid portion capable of binding to or hybridizing with said bridging entity second portion nucleic acid sequence or segment, and one or more signal generating portions, each such portion being capable of providing a detectable signal,

wherein said analyte is a polynucleotide, said one or more nucleic acid sequences or segments of said second portion are repeating low-complexity nucleic acid sequences or segments, and said one or more nucleic acid sequences or segments of said second portion are incapable of hybridizing to the analyte.

547. (PREVIOUSLY PRESENTED) The kit of claim 546, wherein said signal is amplified because the ratio of the signalling entities to the bridging entity exceeds 5.